FOREST INSECT CONDITIONS OF THE FISHLAKE NATIONAL FOREST
1966

This is a summary of forest insect activities on the Fishlake National Forest this year. Material for this report was gathered from aerial survey data, from a special spruce budworm evaluation survey, and from periodic visits to some of the infested areas.

The major forest insect problems this year were the spruce budworm, the Douglas-fir beetle and defoliation of aspen by the aspen leaf tier and large aspen tortrix. A synopsis of these insect problems follows: Spruce budworm populations, expected to remain at about the same level as last year, all but disappeared this year. The primary cause of this sudden, sharp reduction is thought to be a timely sequence of subfreezing temperatures, that occurred this year and last. The low population level of the budworm should continue through 1967, followed by a probable gradual buildup in the next two or three years. The Douglas-fir beetle killed considerably fewer trees this year than last but a slight increase in both intensity and extent of tree killing can be expected next year. Aspen defoliators are at a low ebb and should maintain that status through 1967. A more detailed discussion of these individual insect problems follow:

Spruce budworm, Choristoneura fumiferana (Clem.)

This is the third consecutive year of spruce budworm activity on the Fishlake National Forest. The first known occurrence of budworm damage was in 1964 when some 20,000 acres of defoliation was reported. Last year, in some areas feeding intensity increased, but only 10,000 acres of infestation were mapped. Predictions for 1966 forecast a static condition throughout the infestation with only moderate to light defoliation expected. A sharp decline in the population occurred, however, and almost no noticeable defoliation or other indication of insect activity was observed this year.

Reasons for this unexpected drop in budworm populations have not been positively determined. This sudden decline was most likely caused by unfavorable weather factors; more specifically lethal subfreezing fall and spring temperatures. Last September was unusually cold and early frosts, particularly in the higher elevations, caught non-hatched and late hatching larvae before they became acclimated and had settled into their overwintering sites. According to the Utah State Climatologist, last September was not only the coldest September in history, but 44 stations recorded the morning of September 18, as the coldest September day on record.

May was unusually warm and the surviving budworms broke hibernation earlier than normal and began to enter and feed within the rapidly developing buds. Neither budworm larvae nor the succulent spring growth were able to withstand the subfreezing weather that followed. Lethal below freezing temperatures, first in early June and again in late June, killed most of the growth and most of the larvae. The late frosts had an

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indirect killing effect also, for they undoubtedly deprived many of the surviving larvae of food. This phenomenon also occurred throughout most of the large budworm infestations in southern Idaho.

Examinations made early this summer more or less confirmed this diagnosis. Frozen 1966 foliage was found in practically all infested areas. Some trees had as many as 70 to 90 percent of their buds and new shoots killed by these late frosts. Many small dead budworm larvae were found in the frozen buds.

A followup egg mass evaluation survey was undertaken this fall to provide an estimate of next year's population level. The results of the survey and predictions as to expected defoliation in 1967 follows:

Area	Egg Masses per 1000 sq. inches	Predicted 1967 Defoliation (Percent)
Thousand Lakes Mountain #1	1.61	<15
Thousand Lakes Mountain #2	2.70	<15
Kent Lake	.19	< 15
Grindstone Flat	.15	< 15

The present extremely low level of spruce budworm populations should continue through 1967. Some light defoliation may be evident in the Elkhorn - Thousand Lake Mountain area but no significant or lasting damage should occur. Elsewhere budworm activity will be negligible and it will probably be at least 2 to 3 years before the population returns to its 1965 level.

Douglas-fir beetle, Dendroctonus pseudotsugae Hopk.

The Douglas-fir beetle, a perennial enemy of Douglas-fir in southern Utah, continued its slow but steady depletion of host type on the Forest this year, at a somewhat reduced rate, however, from last year. Aerial surveys indicate a rather significant decrease in activity with only a few large infestations persisting in scattered, relatively inaccessible locations on the Monroe Unit. One large group of approximately 600 recent faders continues to maintain itself on the top of the ridge south of Deer Creek. Other significant but considerably smaller infestation centers occur in the heads of Picnic, Dry, and U.M. Creeks, in Pole Canyon, Deer Spring Draw, and in South Creek. These groups are also scattered in almost inaccessible locations.

No ground checks or first-hand examinations were made in any of these infestations this year; consequently, an evaluation based on systematic

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data taking is lacking. Nonetheless, from past experience with similar infestations it can be predicted that tree killing will continue at the same level next year with some increase expected on dry, submarginal sites contiguous to active infestations. There is reason to believe that the long, dry summer may have preconditioned individual trees as well as entire stands to beetle attacks.

Aspen leaf tier, Sciophila duplex (Wlsh.) and the Large aspen tortrix, Choristoneura conflictana (Wlk.)

Aspen stands in UM area and Sheep Valley have been periodically attacked during recent years by the aspen leaf tier and large aspen tortrix. Examinations made in these areas last year showed that heavy defoliation occurred over more than 3,000 acres. Egg deposition was relatively heavy, and there was every indication that moderate to heavy defoliation would be repeated in 1967.

Ground examinations made in early July showed that the defoliator populations failed to achieve the predicted level. Egg hatch was apparently complete and some early defoliation occurred, but very few live larvae could be found. Occasionally the remains of a dead larvae could be found, but most common was the occurrence of frozen new foliage. The same sequence of subfreezing temperatures that adversely affected spruce budworm populations probably accounted for most of this leaf tier-aspen tortrix mortality.

As predicted last year, the smaller infestations in Big John's Flat and Mi Vest Creek were reduced considerably this year. Although these infestations were already decreasing, the unseasonable frosts undoubtedly contributed to the overall decline.

No new aspen defoliator infestations were reported by the aerial survey this year. Last year's extensive leaf damage caused by a leaf spot, Marssonia populi, was practically nonexistent this year. This made aerial detection of aspen defoliation much simpler. The dry spring and summer contributed greatly to this significant reduction in the occurrence of aspen diseases.

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